

CLAIMS:

1. A chuck to hold an object by electrostatic force, the chuck comprising a dielectric member, the side of the dielectric member facing the object provided with a plurality of pins having a conductive layer on the surface in contact with the object, the conductive layer having a specific resistivity less than $10\ \Omega\text{m}$.
2. A chuck according to claim 1, wherein the conductive layer is less than 200 nm thick.
3. A chuck according to claim 1, wherein the conductive layer is non-metallic.
4. A chuck according to claim 1, wherein the pins are conducting pins which penetrate the depth of the dielectric member and are connected to a conducting member.
5. A chuck according to claim 1, wherein the pins are conducting pins mounted on the surface of the dielectric member facing the object.
6. A chuck according to claim 1, wherein the thickness of the dielectric member is 50 to 200 μm .
7. A chuck according claim 1, wherein the surface area of the pins which is in contact with the object is less than 4% of the total area of the dielectric member.
8. A chuck according to claim 1, wherein the pins project 2 to 10 μm from the surface of the dielectric member.
9. A chuck according to claim 1, wherein the pins are between 0.15mm to 0.5mm in diameter.
10. A chuck according to claim 1, wherein the pins are 2 to 15 mm apart.

11. A chuck according to claim 1, wherein the surface of the dielectric member facing the object is provided with a conductive layer.

12. A chuck according to claim 1, wherein the object is at least one of:

- a substrate used in lithographic projection techniques; and
- a lithographic projection mask or mask blank in at least one of a lithographic projection apparatus, a mask handling apparatus, and a mask manufacturing apparatus.

13. A lithographic projection apparatus comprising:

- an illuminator configured to provide a projection beam of radiation;
- a support structure configured to hold a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;
- a substrate table configured to hold a substrate;
- a projection system configured to project the patterned beam onto a target portion of the substrate;
- a chuck on at least one of the support structure and the substrate table, the chuck comprising a dielectric member, the side of the dielectric member facing an object held by the at least one of the support structure and the substrate table provided with a plurality of pins having a conductive layer on the surface in contact with the object, the conductive layer having a specific resistivity less than $10 \Omega\text{m}$;

and

- at least one electrode for applying a potential difference across the dielectric member of the chuck to generate a clamping force.

14. A lithographic apparatus according to claim 13, wherein the conductive layer is less than 200 nm thick.

15. A lithographic apparatus according to claim 13, wherein the conductive layer is non-metallic.
16. A lithographic apparatus according to claim 13, wherein the pins are conducting pins which penetrate the depth of the dielectric member and are connected to a conducting member.
17. A lithographic apparatus according to claim 13, wherein the pins are conducting pins mounted on the surface of the dielectric member facing the object.
18. A lithographic apparatus according to claim 13, wherein the thickness of the dielectric member is 50 to 200 μm .
19. A lithographic apparatus according claim 13, wherein the surface area of the pins which is in contact with the object is less than 4% of the total area of the dielectric member.
20. A lithographic apparatus according to claim 13, wherein the pins project 2 to 10 μm from the surface of the dielectric member.
21. A lithographic apparatus according to claim 13, wherein the pins are between 0.15mm to 0.5mm in diameter.
22. A lithographic apparatus according to claim 13, wherein the pins are 2 to 15 mm apart.
23. A lithographic apparatus according to claim 13, wherein the surface of the dielectric member facing the object is provided with a conductive layer.

24. A device manufacturing method comprising:
- providing a substrate on a surface of a dielectric member of an electrostatic chuck;
 - applying a potential difference between first and second electrodes thereby applying a potential difference across the dielectric member to generate a clamping force on the substrate, the surface of the dielectric member having a plurality of pins having a conductive layer formed on the outer surface, the conductive layer having a specific resistivity of less than $10\ \Omega\text{m}$; and
 - projecting a patterned beam of radiation onto a target portion of the substrate.
25. A device manufacturing method according to claim 24, wherein the conductive layer is less than 200 nm thick.
26. A device manufacturing method according to claim 24, wherein the conductive layer is non-metallic.
27. A device manufacturing method according to claim 24, wherein the pins are conducting pins which penetrate the depth of the dielectric member and are connected to a conducting member.
28. A device manufacturing method according to claim 24, wherein the pins are conducting pins mounted on the surface of the dielectric member facing the object.
29. A device manufacturing method according to claim 24, wherein the thickness of the dielectric member is 50 to 200 μm .